

## Comparing the Effects of Peer Support and Training by Healthcare Providers on Primiparous Women's Breastfeeding Self-Efficacy

Asieh Moudi (MSc)<sup>1</sup>, Mahin Tafazoli (MSc)<sup>2,3\*</sup>, Hasan Boskabadi (MD)<sup>4,5</sup>, Saeed Ebrahimzadeh (MSc)<sup>6</sup>, Hamid Salehiniya (PhD)<sup>7,8</sup>

<sup>1</sup> Lecturer, Department of Midwifery, School of Nursing and Midwifery, Birjand University of Medical Sciences, Birjand, Iran

<sup>2</sup> Lecturer, Evidence-Based Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

<sup>3</sup> Department of Midwifery, School of Nursing and Midwifery, Mashhad University of Medical Sciences, Mashhad, Iran

<sup>4</sup> Associate Professor, Neonatal Research Center, Mashhad University of Medical Sciences, Mashhad, Iran

<sup>5</sup> Department of Neonatology, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran

<sup>6</sup> Lecturer, Department of biostatistics, School of Health, Mashhad University of Medical Sciences, Mashhad, Iran

<sup>7</sup> Assistant Professor, Minimally Invasive Surgery Research Center, Iran University of Medical Sciences, Tehran, Iran

<sup>8</sup> Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

### ARTICLE INFO

Article type:  
Original article

Article History:  
Received: 09-Mar-2015  
Accepted: 02-Sep-2015

Key words:

Breastfeeding  
Education  
Health Care Providers  
Peer Support  
Self-efficacy

### ABSTRACT

**Background & aim:** Breastfeeding self-efficacy is an important factor affecting the success and duration of breastfeeding. Self-efficacy of people is influenced by four sources including performance accomplishments, vicarious experiences, verbal persuasion and the physiological responses which seem to be modified by breastfeeding intervention. This study was conducted to compare the effect of providing peer support versus training women by health care providers on breastfeeding self-efficacy.

**Methods:** This controlled clinical trial was conducted on 93 primiparous women in Mashhad health-care centres. Three centres were selected as clusters and subjects who attended each cluster were randomly allocated to three groups of peer support, training by health care providers and control. The peer support group received support from their peers four times. Subjects who were trained by health care providers participated in four training sessions by health care providers and the control group only received the routine care. At the end of the eighth postpartum week, data were collected using the breastfeeding self-efficacy scale. The data were analysed using ANOVA and paired t-test with SPSS, version 14.

**Results:** The mean score of self-efficacy at the end of the eighth postpartum week, in the peer support, training by healthcare providers and control groups, were  $54.4 \pm 9.75$ ,  $50.8 \pm 13.05$  and  $56.4 \pm 9.49$ , respectively. The three groups showed no significant differences in terms of breastfeeding self-efficacy score at the end of the eighth postpartum week ( $P$ -value=0.125). Breastfeeding self-efficacy score at baseline and at the end of the eighth postpartum week were significantly different in peer support and training by health care providers groups ( $P=0.05$ ).

**Conclusion:** Peer support and training by healthcare providers have similar impact on breastfeeding self-efficacy in primiparous women. So they could be used interchangeably to promote breastfeeding behavior.

► Please cite this paper as:

Moudi A, Tafazoli M, Boskabadi H, Ebrahimzadeh S, Salehiniya H. Comparing the Effects of Peer Support and Training by Healthcare Providers on Primiparous Women's Breastfeeding Self-Efficacy. Journal of Midwifery and Reproductive Health. 2016; 4(1): 488-497. DOI: 10.22038/jmrh.2016.5629

### Introduction

Breastfeeding is the mainstay of nutrition for neonates and infants (1), since in addition to providing the physical and physiological needs of infants, it is also imperative for the psychological well-being of mothers and

infants (2). Moreover, breastfeeding can have beneficial economic and environmental effects on families and societies (1). The benefits of breastfeeding are widely known and the majority of women believe that breastfeeding

\* Corresponding author: Mahin Tafazoli, Lecturer, Evidence-Based Care Research Center, Mashhad University of Medical Sciences, Mashhad, Iran. Email: tafazolim@mums.ac.ir

is the optimal feeding for their infants, which is evident by the high rate of breastfeeding initiation (98% in Iran) (5-3).

Unfortunately, despite the high rate of breastfeeding initiation, there is a sharp decline in the rate of breastfeeding during the first 4-8 postpartum weeks (3, 6). Various studies have suggested multiple social, physical, biological and psychological factors influencing the ability and willingness of women to breastfeed their babies (7, 8).

Breastfeeding self-efficacy is an important factor affecting the success and duration of breastfeeding (9). The body of evidence suggest that many women are aware of the benefits of breastfeeding and have the intention of breastfeeding; however, they stop breastfeeding when they fail to overcome its associated challenges (3, 4, 10). Although the intention of performing a behaviour is the most important motivation for doing it, but performing good behaviour is also influenced by the attitudes, subjective norms and self-efficacy (10).

Self-efficacy, which is one of the main concepts of social cognitive theory provided by Bandura (11), is a cognitive process of understanding one's capacity to control motivations, thought processes, emotional states and social environments in performing a particular behaviour (10, 12, 13 ). Bandura believes that most people regulate their behaviour based on self-regulation of their attitudes, in other words, individuals refuse to face situations they are not able to effectively cope with, and they seek the situations they can successfully overcome (13).

Dennis, using the social cognitive theory, defined the concept of breastfeeding self-efficacy which shows a mother's ability to breastfeed her infant (14, 15). Breastfeeding self-efficacy determines mother's choice for breastfeeding, an effort she makes in this regard, the existence of self-reinforcing or self-inhibiting thought patterns and the way the mother responds to breastfeeding problems (8, 9, 14-16). Breastfeeding self-efficacy is predictive of the intention to initiate breastfeeding, duration of breastfeeding and exclusive breastfeeding (10, 16-19). Evidence show that women with higher self-efficacy tend to start breastfeeding and confront its

associated challenges, while women with lower self-efficacy may even decide not to breastfeed or discontinue it, which might be due to lack of confidence or effective coping skills (3, 8, 9, 13).

According to the Bandura's theory, people's perception of breastfeeding self-efficacy is influenced by four main sources of information including the performance accomplishments (such as past breastfeeding experiences), vicarious experiences (such as observing other breastfeeding mothers), verbal persuasion (such as the effect of others' encouragements such as friends, family and breastfeeding consultants) and physiological responses (such as fatigue, stress and anxiety) (9, 14, 20). These adverse effects of these sources can be alleviated through some interventions such as training and support (3, 8). Training and support are provided by different professional sources (e.g., healthcare providers and breastfeeding consultants) and social sources (e.g., peers and support groups) (21). Healthcare providers can change mothers' breastfeeding self-efficacy through adjusting these sources of self-efficacy information (8).

Various studies have indicated that professional support and training alone are not sufficient to improve breastfeeding outcomes. Since the routine training provided by medical health centers often accentuate the benefits of breastfeeding, while disregarding the breastfeeding barriers mothers usually encounter (10). Therefore, in order for the breastfeeding mothers to overcome challenges and succeed in breastfeeding, support from family, friends, community and service providers is required (16).

With the advancement of civilization and identification of the importance of social relationships, use of support of nonprofessional people, especially peers, has increased (10, 21). Peer support in breastfeeding includes emotional support, encouragement, training about breastfeeding and offering help to solve the problems of breastfeeding mothers by the mothers who are breastfeeding or have the experience of breastfeeding. Peer is a person who is similar to the other person in a series of specific characteristics such as age, gender, occupation and socioeconomic or health status (22).

Several studies have demonstrated the effect of support and training by peer and health

providers on promoting breastfeeding self-efficacy (3, 4, 9, 10, 13, 16, 20). However, due to the tendency of healthcare services to use the support of nonprofessional people in breastfeeding interventions (21), the comparison of the effectiveness of professional and non-professional interventions in promoting breastfeeding self-efficacy seems to be essential. This study, therefore, was performed to compare the effect of peer support and training by healthcare providers on primiparous women's breastfeeding self-efficacy.

## Materials and Methods

This controlled trial was conducted on 93 primiparous women in 17 Mashhad health centers of Mashhad, Iran, 2011. After approval of the Ethical Committee of Mashhad University of Medical Sciences, a total of 108 mothers were selected through multi-stage sampling. Firstly, a list of all the urban health centers covered by Mashhad health centers No. 1, 2 and 3 was prepared. Then, from each center (No. 1, 2 and 3), three health centers and three health posts covered by them were randomly selected. Finally, due to the integration of one of the centers with its covering center during the study, this study was performed in nine health centers and eight health posts.

Then, the centers were randomly assigned to peer support, training by health providers and control groups. At first, in the selected healthcare centers assigned to the peer support group, phone calls were made to find peer volunteers, the inclusion criteria for peers were: being Iranian, living in the areas being covered by the selected health centers, as well as having telephone access, basic education, history of breastfeeding and good attitudes towards breastfeeding.

After explaining the purpose of the study and obtaining informed consent, 23 volunteers were enrolled in the study for peer support. To prepare the volunteers, a training course was held. Moreover, to evaluate the volunteers' communication skills and their knowledge and attitudes towards breastfeeding, a pre-test was performed.

The training course's agenda included explaining the definition and purpose of peer support, roles and responsibilities of peers,

communication skills, the principles of breastfeeding (benefits, anatomy and physiology, the positions of breastfeeding, the time of production and flow of milk), encouragement and support barriers, common questions and concerns, as well as myths and misconceptions concerning breastfeeding. The training course entailed five sessions and was held for three hours in the selected health centers with the researcher as the lecturer. The lesson plans included questions, answers, role plays, slides and pictures, and was prepared according to Yarmouth Friendly Feeding Line (Volunteer Reference Handbook).

After holding the training course, a post-test was performed to evaluate peers' communication skills, knowledge and attitudes towards breastfeeding. At the end, 16 volunteers who had completed the course and obtained 75% of the post-test score were selected as peer supporters.

To standardize the training, seven healthcare providers who had attended the courses of breastfeeding consultation and were working in health centers assigned to the training group were chosen. Then, after obtaining a written consent, they individually received a training session based on the "Guidelines of breastfeeding for mothers" for two hours. Before and after the training session, pre- and post-tests were performed to assess their communication skills, knowledge and attitudes toward breastfeeding. At the end, all the healthcare providers (7 cases) were selected as healthcare trainers with acquisition of at least 75% of the post-test score.

The self-regulated breastfeeding knowledge assessment questionnaire included 15 items on breastfeeding. The items were in the form of multiple choice questions (single answers). Correct answers were given 1 score and no score was assigned to the incorrect or 'do not know' answers. The maximum and minimum possible scores were 15 and 0, respectively. The scores near 15 indicated higher awareness about breastfeeding. Content validity of the scale was confirmed by 10 faculty members of the Mashhad University of Medical Sciences and its reliability was approved by Cronbach's alpha coefficient of 0.86.

The self-designed breastfeeding attitude

assessment questionnaire included 20 items with a three-level response scale, namely "agree", "no idea" and "disagree", and their respective scores ranged from 1 to 3, respectively. The minimum and maximum possible scores were 20 and 60, respectively. Scores ranging from 20 to 33.3 indicated poor attitude, 33.4 to 46.6 moderate and 46.7 to 60 good. Its content validity was confirmed by 10 faculty members of the Mashhad University of Medical Sciences and its reliability was calculated using Cronbach's alpha coefficient to be 0.74.

The communication skills questionnaire consisted of six subscales: (a) how to ask open questions (n=3) the peer volunteers and health care providers had to write answer, (b) how to empathize on the feelings of mother, including two phrases presumably expressed by mother and the peer volunteers and healthcare providers had to choose the best answer which shows sympathy and understanding of mother's feelings, (c) how to avoid judgmental words, this part contained three phrases in which some judgmental words were used and the peer volunteer had to rewrite not using any judgmental words, (d) how to accept mother's thoughts, which included three phrases expressed by mother and the peer volunteers and healthcare providers had to choose the best option that shows the acceptance of mother's thoughts, (e) how to present the related information in plain and proper language to mother, this part included two scientific statements about the benefits of breastfeeding and the peer volunteers and healthcare providers had to rewrite them with simple comprehensible words for mother, (f) how to provide information in the form of giving suggestion to mother, including two phrases about breastfeeding which were written as offers and the peer volunteers and healthcare providers had to rewrite them as suggestion to mother.

In this form, one score was given to the correct answers and zero score to the incorrect and 'do not know' answers. The minimum and maximum possible scores were 0 and 15, respectively. The mean scores close to 15 show high skill of communication with mother. This questionnaire is a valid tool designed by The

United Nations Children's Fund (UNICEF) World Health Organization in 2006 for a 20-hour training course of staff (23). Its internal consistency reliability was calculated using Cronbach's alpha coefficient to be 0.77.

The self-assessment scale, which was prepared by The National Childbirth Trust (24), was used to assess the peer volunteers' ability to support breastfeeding mothers. The scale consisted of three subscales. The first subscale consists of six questions about communication skills of peer volunteer, using a scale of "usually", "I need to practice In this case" and "I really have problems with this case" with their respective scores ranging from 3 to 1. The minimum and maximum possible scores were 6 and 18, respectively.

The second subscale consisted of three questions about knowledge of the peer volunteers. The first two questions used a scale of "usually", "I need to practice In this case" and "I really have problems with this case" with their respective scores ranging from 3 to 1. The minimum and maximum possible scores were 2 and 6. In the third question we used a two-level response scale "yes" (2) and "no" (1).

The third subscale included two questions on the readiness of the peer volunteers for support of breastfeeding mothers. In first question, a four-level response scale "Yes, now" (4), "now no-but soon" (3), "do not know" (2) and "no" (1) was used. The second question was of open-ended form and evaluated volunteers' readiness to provide support.

The self-assessment scale was translated by the researcher. Then, the scale was given to two English language professors of Mashhad University of Medical Sciences. After considering their suggestions and revisions, the Persian edition was given to 10 faculty members of the Mashhad University of Medical Sciences and the final form was developed after considering their suggestions. The internal consistency reliability of the self-assessment scale was examined using Cronbach's alpha ( $\alpha=0.77$ ).

At the end of the training course (for the peer volunteers and health care providers), the sample size was calculated performing a pilot study. At first, 30 primiparous women who had similar conditions and characteristics with the research subjects were selected and randomly

divided into three groups of peer support, training by healthcare providers and control. Then the final sample size was determined according to the results. Since the dependent variable of the study (breastfeeding self-efficacy) was studied as quantitative, the sample size was calculated as 36 cases in each group using mean comparison formula with confidence degree of 95% ( $\alpha=0.05$ ) and test power of 80% ( $\beta=0.2$ ), and 30% loss. Then, 108 eligible women for the study who had completed the informed consent forms were selected from the population covered by health centers.

The inclusion criteria for primiparous women were as follows: living in Mashhad, Iran, having normal singleton pregnancy and intention of breastfeeding, gestational age of 35-36 weeks, lack of structural defects, severe mental problems (anatomical) or history of breast surgery and not using tobacco and alcohol.

The exclusion for primiparous women included: preterm (<37 completed weeks) or late (>42 weeks) delivery, postpartum complications, requiring intensive care due to problems such as eclampsia, postpartum haemorrhage and puerperal infections, having infants weighing <2500 gr and >4000 gr, congenital disorders or problems hampering breastfeeding (e.g., cleft lip, cleft palate, neuromotor disorders, cardiovascular and respiratory problems) or having other diseases requiring intensive care.

The researcher matched the peer support group with similar peers based on cultural, social and economic similarities such as region of residence, economic status and educational level. Then, the first peer support was provided at 36-38 weeks of pregnancy as verbal at the health centers, and the next three supports were given within the first, second and third weeks after birth. The support in the second postpartum week was verbal and the supports of the first and third postpartum weeks were given through telephone by the peer.

In the training by healthcare providers group, the first training session was held by the healthcare providers at 36-38 weeks of pregnancy and the third training session was held individually in the second postpartum

week while providing the pregnancy and postpartum routine care according to the checklist of breastfeeding training. The second and fourth trainings were performed in the first and third postpartum weeks through telephone by the healthcare providers.

The subjects of the control group only received the pregnancy routine care including recommendation for breastfeeding at 35-40 weeks of pregnancy and postpartum care included recommendations for breast-feeding on the 1-3, 10-15 and 42-60 postpartum days).

In this study, mothers' demographics, pregnancy characteristics, maternal attitudes towards breastfeeding, weight gain during pregnancy and data about childbirth and infant's characteristics after delivery were recorded by a self-regulated questionnaire. The mothers' experience of breastfeeding was evaluated by breastfeeding experience scale at the end of eighth postpartum week, and mothers' breastfeeding self-efficacy was evaluated by Breastfeeding Self-Efficacy Scale-Short Form (BSES-SF) at baseline and at the end of eighth postpartum week.

BSES-SF contains 14 phrases all of which started with the statements of "I always can" and are scored using a 5-point Likert type scale from grade 1 to grade 5 for strongly agree to strongly disagree. Total score is ranging 14-70 (14), and the scores higher than the median show higher efficacy and the scores lower than the median indicate low self-efficacy (11).

The content validity of the questionnaire on mothers' demographics, pregnancy characteristics, maternal attitudes towards breastfeeding, weight gain during pregnancy and data about childbirth and infant's characteristics after delivery was confirmed by 13 faculty members of Mashhad University of Medical Sciences, and its reliability was confirmed by test-retest method ( $r>0.9$ ) and Cronbach's alpha ( $\alpha>0.7$ ). Additionally, content validity of the BSES-SF questionnaire was confirmed by Bastani (2008) and its reliability was confirmed using Cronbach's alpha ( $\alpha>0.87$ ) (11). Breastfeeding experience scale consists of 18 items about the experiences that some mothers have during breastfeeding.

**Table 1.** Evaluation of homogeneity of the intervening variables during pregnancy on women's breastfeeding self-efficacy in the studied groups

| Variables   | Groups       |                                      |           | Test's results            |
|---|--------------|--------------------------------------|-----------|---------------------------|
|   | Peer support | Training by the healthcare providers | Control   |                           |
|   | N (%)        | N (%)                                | N (%)     |                           |
| <b>Unwanted pregnancy</b>   |              |                                      |           |                           |
| Yes   | 3 (9.4)      | 5 (16.7)                             | 3 (9.7)   | Fisher exact<br>P=0.665   |
| No  | 29 (90.6)    | 25 (83.3)                            | 28 (90.3) |                           |
| <b>Mother's feeling toward pregnancy</b>                                |              |                                      |           |                           |
| Very happy  | 13 (40.6)    | 4 (13.3)                             | 10 (32.3) | Kruskal Wallis<br>P=0.039 |
| Happy   | 18 (56.3)    | 22 (73.3)                            | 18 (58.1) |                           |
| Apathetic   | 0 (0)        | 3 (10.0)                             | 2 (6.5)   |                           |
| Sad   | 1 (3.1)      | 1 (3.3)                              | 1 (3.2)   |                           |
| <b>Husband's feeling toward pregnancy</b>                               |              |                                      |           |                           |
| Very happy  | 19 (59.4)    | 7 (23.3)                             | 17 (54.8) | Chi-square<br>P=0.009     |
| Happy   | 13 (40.6)    | 23 (76.7)                            | 14 (45.2) |                           |
| <b>Receiving additional breastfeeding training during pregnancy</b>     |              |                                      |           |                           |
| Yes   | 5 (15.6)     | 5 (16.7)                             | 2 (6.5)   | Fisher exact<br>P=0.470   |
| No  | 27 (84.4)    | 25 (83.3)                            | 29 (93.5) |                           |
| <b>The source of additional breastfeeding training during pregnancy</b> |              |                                      |           |                           |
| Health centers classes  | 2 (40.0)     | 2 (40.0)                             | 1 (50.0)  | Chi-square<br>P=0.975     |
| Radio, Television and newspaper   | 1 (20.0)     | 1 (20.0)                             | 0 (0)     |                           |
| Book  | 2 (40.0)     | 2 (40.0)                             | 1 (50.0)  |                           |
| <b>Mother's attitude on breastfeeding</b>                               |              |                                      |           |                           |
| Very agree  | 13 (40.6)    | 5 (16.7)                             | 7 (22.6)  | Kruskal Wallis<br>P=0.098 |
| Agree   | 19 (59.4)    | 25 (83.3)                            | 22 (71.0) |                           |
| Disagree  | 0 (0)        | 0 (0)                                | 2 (2.2)   |                           |
| <b>Husband's attitude on breastfeeding</b>                              |              |                                      |           |                           |
| Very agree  | 10 (31.3)    | 4 (13.3)                             | 7 (22.6)  | Kruskal Wallis<br>P=0.038 |
| Agree   | 22 (68.8)    | 21 (70.0)                            | 23 (74.2) |                           |
| No idea   | 0 (0)        | 5 (16.7)                             | 1 (3.2)   |                           |
| <b>Family attitudes on breastfeeding</b>                                |              |                                      |           |                           |
| Very agree  | 8 (25.0)     | 1 (3.3)                              | 4 (12.9)  | Kruskal Wallis<br>P=0.022 |
| Agree   | 24 (75.0)    | 27 (90.0)                            | 26 (83.9) |                           |
| No idea   | 0 (0)        | 2 (6.7)                              | 1 (3.2)   |                           |
| <b>First time of receiving the prenatal care</b>                        |              |                                      |           |                           |
| First trimester   | 15 (46.9)    | 9 (30.0)                             | 24 (77.4) | Fisher exact<br>P=0.001   |
| Second trimester  | 16 (50.0)    | 20 (66.7)                            | 6 (19.4)  |                           |
| Third trimester   | 1 (3.1)      | 1 (3.3)                              | 1 (3.2)   |                           |

This scale evaluated the severity of breastfeeding difficulties using five-point Likert type scale, ranging from never (score 1) to unsustainable (score 5), so that the lowest score was 18 and the highest score was 90.

Score ranging 18-41 indicated mild experience, 42-65 moderate, and 66-90 severe. The scale was completed by the research unit during eighth postpartum week.

The validity of the breastfeeding

experience scale was confirmed by Wambach (1997) and validity of the Persian version was confirmed in the study of Karimi (2008) by the faculty members of Mashhad University of

Medical Sciences (25). Its internal consistency was confirmed by Cronbach's alpha coefficient of 0.70.

**Table 2.** Evaluation of homogeneity of the intervening variables after delivery on women's breastfeeding self-efficacy in the studied groups

| Variables  | Groups                |  |                  | Test's results            |
|--|-----------------------|--|------------------|---------------------------|
|  | Peer support<br>N (%) | training by<br>healthcare providers<br>N (%) | Control<br>N (%) |                           |
| <b>Satisfaction with delivery</b>                        |                       |  |                  |                           |
| Never  | 8 (25.0)              | 11 (36.7)                                    | 9 (29.0)         | Kruskal Wallis<br>P=0.150 |
| A little   | 4 (12.5)              | 8 (26.7)                                     | 4 (12.9)         |                           |
| Average  | 14 (43.8)             | 9 (30.0)                                     | 14 (45.2)        |                           |
| High   | 6 (18.8)              | 2 (6.7)                                      | 4 (12.9)         |                           |
| <b>Husband's support of breastfeeding after delivery</b> |                       |  |                  |                           |
| Never  | 0 (0)                 | 1 (3.3)                                      | 0 (0)            | Kruskal Wallis<br>P=0.091 |
| A little   | 1 (3.1)               | 2 (6.7)                                      | 3 (9.7)          |                           |
| Average  | 2 (6.3)               | 4 (13.3)                                     | 6 (19.4)         |                           |
| High   | 7 (21.9)              | 11 (36.7)                                    | 6 (19.4)         |                           |
| Very much  | 22 (68.8)             | 12 (40.0)                                    | 16 (51.6)        |                           |
| <b>Family's support of breastfeeding after delivery</b>  |                       |  |                  |                           |
| Never  | 0 (0)                 | 1 (3.3)                                      | 0 (0)            | Kruskal Wallis<br>P=0.098 |
| Average  | 4 (12.5)              | 6 (20.0)                                     | 7 (22.6)         |                           |
| High   | 14 (43.8)             | 16 (53.3)                                    | 5 (16.1)         |                           |
| Very much  | 14 (43.8)             | 7 (23.3)                                     | 19 (61.3)        |                           |
| <b>Receiving breastfeeding postpartum training</b>       |                       |  |                  |                           |
| Yes  | 17 (53.1)             | 18(60.0)                                     | 20 (64.5)        | Chi-square<br>P=0.651     |
| No   | 15 (46.9)             | 12 (40.0)                                    | 11 (35.5)        |                           |

Then, the obtained data were analysed using paired t-test Kruskal-Wallis, linear regression, Fisher's exact, Chi-square and ANOVA tests.

## Results

From 108 pregnant women participating in this study, 15 cases were excluded due to reasons such as hospitalization and death of newborn, stillbirth, lack of willingness to continue cooperation or not receiving the training or support. The remaining 93 cases, with 35 weeks of pregnancy to 8 weeks after birth, were assigned to peer support (n=32), training by health care providers (n=30) and control (n=31) groups. The mean age of the subjects was 23.8±3.90 years, and most of the subjects (48 cases [51.6%]) had high school education. Moreover, 81 women (87.1%) were housewives, 2 (2.1%) were students and 10

(10.8%) were employed. The three groups were matched for age, educational level and occupation (P<0.05).

All the pregnant women intended to breastfeed their babies (99% had decided before or at the onset of pregnancy and 1% later during pregnancy). Additionally, 45.2% of the cases reported past history of unsuccessful breastfeeding among their relatives. All the deliveries were performed in public hospitals, 51.6% of which were through caesarean section and 48.4% were through vaginal delivery. The results showed that 58.1% of the neonates were male and 41.9% were female, and 90.3% of the mothers were completely satisfied with their baby's gender, 8.6% were somewhat satisfied and 1.1% were dissatisfied. The three groups were not significantly different in terms of intention for breastfeeding, history of

unsuccessful breastfeeding in their relatives, mode of delivery, gender and satisfaction with neonate's gender ( $P < 0.05$ ).

Mean score of breastfeeding experience scale was  $33.4 \pm 6.40$ , and there were no significant differences between the three groups ( $P = 0.465$ ).

Comparison of the confounding variables during pregnancy and after delivery in the studied groups is shown in Tables 1 and 2, and the effects of the confounding variables on breastfeeding self-efficacy, based on the linear regression results, are presented in Table 3.

**Table 3.** Evaluation of the effect of intervening variables on breastfeeding self-efficacy based on the linear regression model\*

| Variables   | breastfeeding self-efficacy |            |         |
|---|-----------------------------|------------|---------|
|   | B                           | Std. Error | P-value |
| Constant  | 53.826                      | 5.257      | <0.001  |
| First time of receiving the prenatal care         | -5.927                      | 1.753      | 0.001   |
| Husband's support of breastfeeding after delivery | 2.247                       | 1.820      | 0.037   |

\* linear regression model: Breastfeeding self-efficacy =  $53.826 - 5.927$  (First time of receiving the prenatal care) +  $2.247$  (Husband's support of breastfeeding after delivery)

**Table 4.** Comparison of mean score of breastfeeding self-efficacy before and after the intervention

| Variable                           | Groups       |                                      |            | One-way ANOVA test |
|------------------------------------|--------------|--------------------------------------|------------|--------------------|
|                                    | Peer support | Training by the healthcare providers | Control    |                    |
|                                    | Mean±SD      | Mean±SD                              | Mean±SD    |                    |
| <b>breastfeeding self-efficacy</b> |              |                                      |            |                    |
| At baseline                        | 53.3 ±9.39   | 50.0 ±12.70                          | 56.5 ±9.51 | P=0.055            |
| 8 weeks after birth                | 54.4 ±9.75   | 50.8 ±13.05                          | 56.4 ±9.49 | P=0.125            |
| Paired t-test                      | P<0.001      | P=0.005                              | P=0.572    |                    |

Mean score of breastfeeding self-efficacy at the beginning of the study was  $53.3 \pm 10.79$  and at the end of the eighth postpartum weeks it was  $53.9 \pm 10.98$ . ANOVA test results showed that the three groups were not significantly different in terms of breastfeeding self-efficacy at baseline ( $P = 0.055$ ) and the end of the eighth postpartum week ( $P = 0.125$ ). However, breastfeeding self-efficacy scores at baseline and at the end of the eighth postpartum week were significantly different in peer support and training by the healthcare providers groups ( $P < 0.05$ ) (Table 4).

## Discussion

The results of this study showed that breastfeeding self-efficacy of women at the end of the eighth postpartum week was not significantly different in the peer support, training by health care providers and control groups. However, after the intervention,

comparison of breastfeeding self-efficacy scores at baseline and at the end of the eighth postpartum week in each group revealed a significant increase in breastfeeding self-efficacy scores of the peer support and training by health care providers groups. No difference between the groups is presumably due to the fact that mean of early breastfeeding self-efficacy was higher than median in the three groups (42) and none of the groups had low self-efficacy. In addition, based on Bandura's social cognitive theory, breastfeeding self-efficacy and social support are closely associated with each other (20).

According to the social cognitive theory, verbal encouragement can reinforce self-efficacy, especially in women, who are positively influenced by what they hear from others. Bandura also believed that active engagement and participation of people increases their self-efficacy, which in turn, affects the emotional and

psychological status of individuals (3).

In this study, the mothers who had started prenatal care from the first trimester of pregnancy, regardless of their intervention, had higher self-efficacy scores as compared to the mothers who had not received prenatal care. This difference seems to be due to receiving social support, engagement during pregnancy and participation in the prenatal care program.

The results of the present study indicated that peer support and training by health care providers improved the breastfeeding self-efficacy score. This finding is quite in line with the results of Eidman (2011) and Sharifirad (2011) studies, which were performed to increase breastfeeding self-efficacy through prenatal care training (3,26), and is inconsistent with the results of the McQueen (2011) study, which was performed to assess the impact of a designed intervention to increase breastfeeding self-efficacy.

The study by McQueen was performed on nulliparous women by a trained nurse. Training was performed in the first 24 postpartum hours and 24 hours after the first meeting as verbal and individually and one week after discharge from the hospital through telephone. Mothers' breastfeeding self-efficacy was studied in the fourth and eighth postpartum weeks (27) which was similar to the present study in terms of the time of studying self-efficacy and the time of beginning the training (the intervention in this study started from prenatal period and continued up to after the delivery, while in McQueen study, the intervention was conducted after delivery).

Studies have shown that the interventions starting from the prenatal period are more effective than interventions beginning after birth (27), since commitment to breastfeeding is made from the first trimester of pregnancy and training to promote breastfeeding self-efficacy should be provided before delivery (3).

Thus, it can be concluded that peer support and training by health care providers can determine breastfeeding barriers and offer solutions to overcome them; moreover, they can aid with identifying the strengths and resources of support and predict success and perseverance in the face of breastfeeding

difficulties (16), and can improve breastfeeding self-efficacy through "vicarious experience" and "verbal encouragement" (3,17).

Breastfeeding self-efficacy at the end of the eighth postpartum week decreased in the control group despite receiving the routine care, which includes breastfeeding recommendations in 35-37, 38, 39 and 40 weeks of pregnancy and 1-3, 10-15 and 42-60 days after delivery. This result showed the importance of training on the benefits of breastfeeding regardless of its difficulties. Therefore, applying the appropriate strategies to increase breastfeeding self-efficacy, especially in primiparous women, to improve the process of breastfeeding seems to be necessary (11).

One of the strengths of this study is evaluation of the mothers' breastfeeding self-efficacy at the end of the eighth postpartum week after birth and after breastfeeding and mother's objective facing with breastfeeding experience and problems caused during breastfeeding. Given the fact that breastfeeding self-efficacy determines mother's choice to breastfeed, the effort makes in this regard, and the way mother responds to the breastfeeding problems (8), it seems that evaluation of self-efficacy after initiation of breastfeeding is a suitable time to evaluate the rate of breastfeeding. The other strength of the present study is the beginning of peer support and training by health care providers during pregnancy and continuing it after delivery.

One of the limitations of this study was lack evaluation of the mother's character and her self-confidence and its effect on breastfeeding self-efficacy, which is recommended to be evaluated in future studies.

## **Conclusion**

The results of this study showed that the effect of peer support and training by health care providers on primiparous women breastfeeding self-efficacy was similar.

## **Acknowledgements**

Hereby, we would like to thank the Health Faculty of Mashhad University of Medical Sciences, managers of health care centers, health care providers and peer volunteers as well as

the mothers who cooperated with this study.

## Conflicts of interest

Authors declared no conflicts of interest.

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